

IF YOU ADD 1 TO A NUMBER,
YOU GET THE NEXT ONE.

$$1 + 25 = 26$$

$$13 + 1 = 14$$

$$63 + 1 = 64$$

$$72 + 1$$

$$1 + 15 = 16$$

$$1 + 18$$

IF YOU ADD **2** TO AN ODD ONE.

YOU GET THE NEXT ODD

$$\begin{array}{c|c} 2+7=9 & 15+2=17 \\ \hline \end{array}$$

IF YOU ADD **2** TO AN EVEN ONE.

YOU GET THE NEXT EVEN

$$\begin{array}{c|c} 2+8=10 & 14+2=16 \\ \hline \end{array}$$

$$2+26=$$

$$28$$

$$2+34$$

$$46+2$$

THE FIRST 9-RECIPE

THINK / LESS AND TEEN

$$7 + 9$$

6 TEEN

$$9 + 4$$

3 TEEN

$$9 + 9$$

8 TEEN

$$9 + 2$$

$$9 + 5$$

4 TEEN

$$9 + 6$$

2ND 9-RECIPE

THINK /MORE , /LESS

$$87 + 9$$

$$96$$

$$29 + 4$$

$$3 \quad 3$$

$$23 + 9$$

$$32$$

$$76 + 9$$

$$129 + 3$$

$$13 \quad 4$$

$$119 + 3$$

THE 10-PARTNERS

A VISUAL

$$14 + 6$$

$$21 + 9$$

$$35 + 5$$

$$42 + 8$$

$$57 + 3$$

$$96 + 4$$

FOUR Seven

STEPPING Eleven STONE

$$4+7=11$$

$$4+7=11$$

$$4+7=11$$

$$5+7=$$

$$4+8=$$

$$3+8$$

11
8
6
4 TEEN

3
2
1

3.5.8
5.8.13

ALGORITHMS

THINK

$$\begin{array}{r} + 15 \\ \hline 37 \\ + 8 \\ \hline 45 \end{array}$$

RELAY

METHOD

ADDING UP!

WITHOUT
CRUTCH
FINGERS

$$\begin{array}{r} 88 \\ + 15 \\ \hline 103 \end{array}$$

EYES



THINK

$$\begin{array}{r} + 16 \\ \hline 79 \\ + 17 \\ \hline 96 \end{array}$$

$9 - 2 =$

7

$9 - 4 =$

5

THINK / LESS. / MORE

$37 - 9 =$

28

$72 - 9 =$

63

$59 - 8 =$

5

$49 - 3 =$

4

6

$106 - 9$

97

$237 - 9$

228

$$13 - 5 = 8 \quad | \quad 15 - 7 = 8$$

THE DIRECT WAY

2 STEPS
THE INDIRECT WAY
USING THE 10-PARTNERS

$$12 - 7 = 3 + 2 = 5$$

$$14 - 8 = 2 + 4 = 6$$

$$44 - 6 = 38 \quad (40-2)$$

$$75 - 7 =$$

ALGORITHMS

"Put / Take /"

$$\begin{array}{r} 43 \\ - 8 \\ \hline 35 \end{array} \quad \text{Do } 13-8=5$$

(A red arrow points from the 8 in the minuend to the 5 in the answer.)

$$\begin{array}{r} 35 \\ \text{---} \\ 4 \end{array} \quad \text{Do } 4-1=3$$

$$\begin{array}{r} 73 \\ - 25 \\ \hline 48 \end{array} \quad \text{Do } 13-5=8$$

(A red arrow points from the 5 in the minuend to the 8 in the answer.)

$$\begin{array}{r} 48 \\ \text{---} \\ 6 \end{array} \quad \text{Do } 6-2=4$$

THE NEW TABLES

9x2

9x3

9x4

9x5

9x6

9x7

9x8

9x9

5x2

5x4

5x6

5x8

2x2

2x3

7x3

8x4

6x2

6x4

6x6

6x8

3x4

7x8

7x6

8x8

3x3

3x6

3x8

5x3

5x7

5x5

7x2

7x4

7x7

4x2

4x4

8x2

THE NEW TABLES

**6 and Even
Half the Number and the Number**

$$6 \times 2 = 12$$

$$6 \times 4 = 24$$

$$6 \times 6 = 36$$

$$6 \times 8 = 48$$

Count to Eight.
Answers in Front.

1 2 3 4

5 6 7 8

Answers Behind.

7 6 4 2

8 8 6 4

EVEN EVEN

If
 $2 \times 4 = 8$
Then
 4×4
=
2 Eightssss
sixteen

**5 and Even
Half the Number and Zero**

$$5 \times 2 = 10$$

$$5 \times 4 = 20$$

$$5 \times 6 = 30$$

$$5 \times 8 = 40$$

$$2 \times 2 = 4$$

$$2 \times 3 = 6$$

Answers Behind.

7 3 2 1

8 4 3 2

2×7
2 Weeks
A Fortnight

14
Nights

4×7
4 Weeks
 $14 + 14 = 28$

4×7 Shortest Month
FEBRUARY
12345678

2nd Month 8 Letters

A WEEK & A WEEK
A FORT NINE 49

**5 × ODD
ENDS IN 5 WITH
ODD NUMBER
IN FRONT**

$$5 \times \textcolor{blue}{\square} = 15$$

$$5 \times \textcolor{blue}{\square} = 35$$

HOW MANY?
 $5 \times 5 = \textcolor{red}{\square}$

The 9-Partners

1 2 3 4

8 7 6 5

**The 9 Recipe:
Think 1 Less
and
the Partner**

$$9 \times 2 = 18$$

$$9 \times 3 = 27$$

$$9 \times 4 = 36$$

$$9 \times 5 = 45$$

$$9 \times 6 = 54$$

$$9 \times 7 = 63$$

$$9 \times 8 = 72$$

$$9 \times 9 = 81$$

 Channel 9 Amazing Numbers 1. 9 Partners 2. Half 36=18 3. 3x6=18 4. To Remember the 3 Threes Group
8 \times 3

ALGORITHMS

$$\begin{array}{r}
 123 \\
 \times 2 \\
 \hline
 246
 \end{array}$$

Diagram showing arrows pointing from the tens column of 123 to the tens column of 2, indicating the multiplication of tens.

$$10 \times 4 = 40$$

$$100 \times 5 = 500$$

$$1000 \times 6 = 6000$$

$$123$$

$$\begin{array}{r}
 \times 321 \\
 \hline
 123
 \end{array}$$

$$2460$$

$$\begin{array}{r}
 36911 \\
 \hline
 39483
 \end{array}$$

$$40 \leftarrow 56$$

CHECK

$$\begin{array}{r}
 57 \\
 \times 8 \\
 \hline
 456
 \end{array}$$

Diagram showing arrows pointing from the tens column of 57 to the tens column of 8, indicating the multiplication of tens.

IGNORE

9

FROM MULTIPLICATION TO DIVISION

VISUALISE., EYES CLOSED.

A PROFESSIONAL MEMORY TRAINING TECHNIQUE

$$9 \times 6 = 54$$

- PULL IT APART & PUT IT TOGETHER AGAIN
A COUPLE OF TIMES.

• SAY ALOUD,

9. 6. 54

REMEMBER^{NON}

$$54 \div 6 = 9$$

$$54 \div 9 = 6$$

LONG DIVISION

TYPE 1

$$12345 \div 3 = 4115$$

$$\begin{array}{r} -12 \\ \underline{-3} \\ 3 \\ -3 \\ \hline 4 \\ -3 \\ \hline 15 \\ -15 \\ \hline \end{array}$$

A long division diagram showing the steps to divide 12345 by 3. The quotient 4115 is written above. The divisor 3 is written vertically on the left. The dividend 12345 is written below. A green vertical arrow points down from the first digit '1' through the first subtraction step. Two red vertical arrows point down from the second digit '2' through the third subtraction step, indicating the placement of digits in the quotient.

TYPE 2

$$34813 \div 5 = 6962 \frac{3}{5}$$

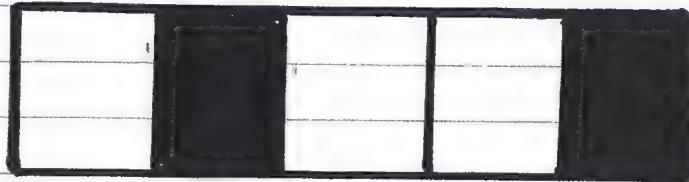
$$\begin{array}{r} -30 \\ \hline 48 \\ -45 \\ \hline 31 \\ -30 \\ \hline 13 \\ -10 \\ \hline 3 \end{array}$$

PRONOUNCE:

3 FIFTHS
(A FRACTION)

NOTE: REMAINDER 3 IS NOT AN ANSWER

FRACTIONS



SHADED

2 OUT OF 5

WRITE

$$\frac{2}{5}$$

SAY

TWO FIFTHS

NOT SHADED

$$\frac{3}{5}$$

$$\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$$

$$5\text{ FIFTHS} - 2\text{ FIFTHS} = 3\text{ FIFTHS}$$

$\frac{4}{7}$ NUMERATOR
DENOMINATOR
NAME

SPECIAL NAMES

$\frac{1}{2}$ HALF

$\frac{1}{3}$ A THIRD

$\frac{1}{4}$ A QUARTER

$$1 - \frac{3}{7} = \frac{4}{7}$$

$$1 - \frac{5}{8} =$$

$$3 - \frac{4}{5} = 2 \frac{1}{5}$$

$$3 - \frac{2}{9} =$$

$$5 - 2 \frac{1}{7} = 2 \frac{6}{7}$$

$$4 - 1 \frac{2}{11} =$$

PROPER FRACTION

$$\frac{5}{9}$$

IMPROPER FRACTION

$$\frac{9}{5}$$

NAME

MIXED NUMERAL

$$2 \frac{1}{5}$$

$$\frac{3}{7}$$

$$\frac{11}{5}$$

$$1 \frac{4}{5}$$

SAME NAME

$$2 \frac{1}{5}$$

PLUS TIMES

$$\frac{12}{7} = 1 \frac{5}{7}$$

$$2 \frac{3}{4} = \frac{11}{4}$$

$$\frac{15}{8} =$$

$$5 \frac{1}{6} =$$

$$\frac{4}{7} + \frac{1}{3} = \frac{19}{21}$$

DISCOVERY
METHOD

$$\frac{4}{7} - \frac{1}{3} = \frac{5}{21}$$

$$\frac{4}{7} \times \frac{1}{3} = \frac{4}{21}$$

$$\frac{3}{7} \div \frac{1}{2} = \frac{6}{7}$$

DISCOVERY IS AN INNER PROCESS
AND THUS BETTER REMEMBERED

CONVERSIONS

$3\frac{4}{5}$	$3\frac{8}{10}$	3.8	380%
$1\frac{1}{4}$	$1\frac{25}{100}$	1.25	125%
$2\frac{3}{4}$	$2\frac{75}{100}$	2.75	275%

$10 \times 2.34 = 23.4$

$100 \times 5.67 = 567$

$340 \div 10000 = .034$

PER¹⁰⁰_{CENT} TO DECIMAL

$$5\% = .05 \quad 12\% = .12 \quad 175\% = 1.75$$

$$6\% \text{ OF } 200 = 12$$

$$12\% \text{ OF } 700 = 840$$

$$20\% \text{ OF } 60 = 12$$

WHAT % = $\frac{\text{THIS}}{\text{THAT}}$

$$\frac{\text{THIS}}{\text{THAT}} = \frac{34}{1700}$$

$$2\%$$

$$\frac{\text{THIS}}{\text{THAT}} = \frac{54}{80}$$

$$54 \div 8 = 6.75\%$$

EQUATIONS USE LETTERS NOT BOXES

$$\boxed{x} + 10 = 15$$

$$x + 10 = 15$$

$$x = 15 - 10$$

$$y - 2 = 14$$

$$y = 14 + 2$$

$$4a = 12$$

$$a = 12 \div 4$$

$$\frac{a}{6} = 2$$

$$a = 2 \times 6$$